

Sharon Friends of Conservation

c/o Kurt Buermann, President
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March 31, 2012

Kathleen Baskin, P.E.
Director of Water Policy
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, 9th floor
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Dear Ms. Baskin,

The Sharon Friends of Conservation (SFOC) appreciates the effort that has gone into the Sustainable Water Management Initiative. Considering that the next round of Water Management Act (WMA) permits will last 20 years, which is more than half the time remaining to reduce greenhouse gas emissions by 80% according to the Global Warming Solutions Act, and considering that a significant fraction of greenhouse gas emissions are related to water use, and considering that approximately 20% of the sub-basins in Massachusetts are degraded enough to be classified as Category 4 or 5 on a scale of 1 to 5, we believe that more careful management of our water resources is called for.

The Town of Sharon straddles the divide between the Taunton watershed and the Neponset watershed. Both of these watersheds have been deemed “medium stressed” by the Massachusetts Water Resources Commission. However, the safe yield withdrawal limits proposed by SWMI for both of these watersheds are far higher than current use. SFOC believes withdrawals in stressed basins should be reduced, especially considering that doing so would presumably help restore ecosystem health as described in the recent excellent study by USGS and the Massachusetts Division of Fisheries and Wildlife correlating fluvial fish abundance with stream flow.

Municipal water withdrawals in Sharon are pushing the limits of local water resources. In 2010 a ban on lawn irrigation had to be imposed, and in 2011 peak summer demand required pumping of Well #6, which stains tap water brown with iron and manganese.

Pumping of municipal wells visibly impacts local water resources, especially in hot, dry summer weather. Sharon’s Atlantic White Cedar Swamp, which renders extremely valuable ecosystem services by purifying and storing Sharon’s drinking water, is showing alarming signs of deterioration. Management of Lake Massapoag, Sharon’s premiere recreational and aesthetic asset, is compromised by reduced flow of spring water.¹ Conservation Commissioners in Sharon and elsewhere understand the water requirements of wetlands, and should be involved in the WMA permitting process.

¹ Cliff Towner, Chairman, Sharon Lake Management Committee (personal communication)



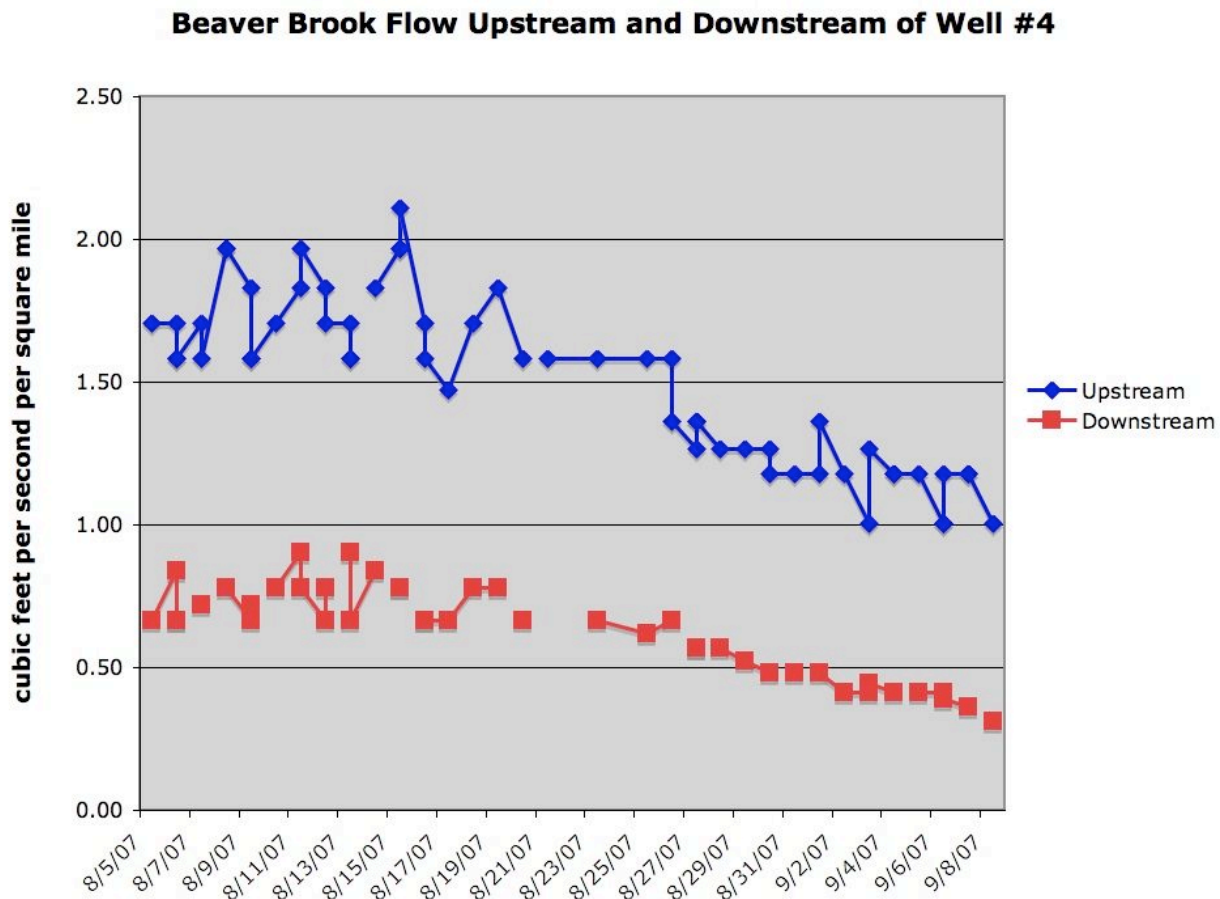
Roots of an Atlantic white cedar tree exposed by subsidence of organic substrate. Note emergence of broad-leaf vegetation, which accelerates desiccation of the swamp through transpiration.



Lake Massapoag, suffers from reduced spring flow, which makes it more difficult to flush nutrient-enriched water to maintain water quality, while maintaining an adequate water level in the lake for swimmers and boaters.

Concern about the degradation of Sharon's water resources inspired members of the Sharon Friends of Conservation to monitor stream flow at six gauge locations in collaboration with the Department of Environmental Restoration's River Instream Flow Stewards (RIFLS) program. We have been monitoring flow in Billings Brook, which feeds the Taunton River, and Beaver Brook, which feeds the Neponset River, on a more-or-less daily basis since June 21, 2007. The data can be viewed at www.rifls.org.

The gauge sites were strategically selected to measure flow above and below the two largest wells in Sharon, in order to quantify the impact of well pumping on the nearby streams. Along Beaver Brook, pumping of Well #4, which pumps up to one million gallons per day (approximately 1.5 cfs) during periods of peak demand in summer, reduces flow in the Brook. The impact of pumping Well #4 during moderate drought conditions in late summer of 2007 on flow in Beaver Brook is apparent in the graph below.



In addition to direct flow measurements, the Sharon Friends of Conservation arranged for personnel from the Division of Fisheries and Wildlife to sample fish populations in Beaver Brook on August 25, 2008. Three reaches were sampled: downstream of the three wells along the brook, among the wells, and upstream of the wells. A reproducing population of brook trout was discovered upstream of the three wells, but no trout were found farther downstream where flow is influenced by well pumping. The water temperature at the upstream location was nearly 10°F cooler than that of the two reaches farther downstream under the influence of the wells.



Small brook trout captured in the headwaters of Beaver Brook in Sharon

Well #7, Sharon's second largest municipal well, pumps up to 400,000 gallons per day. It is located beside Gavins Pond, an impoundment of Billings Brook in the Taunton watershed. During the moderate drought of 2007, water actually ceased flowing out of Gavins Pond, even though Billings Brook continued to flow into Gavins Pond (see attached collage). Withdrawals by Well #7 adjacent to Gavins Pond presumably accounted for the difference. Ponds downstream in Foxboro that rely on inflow from Billings Brook also dried up.

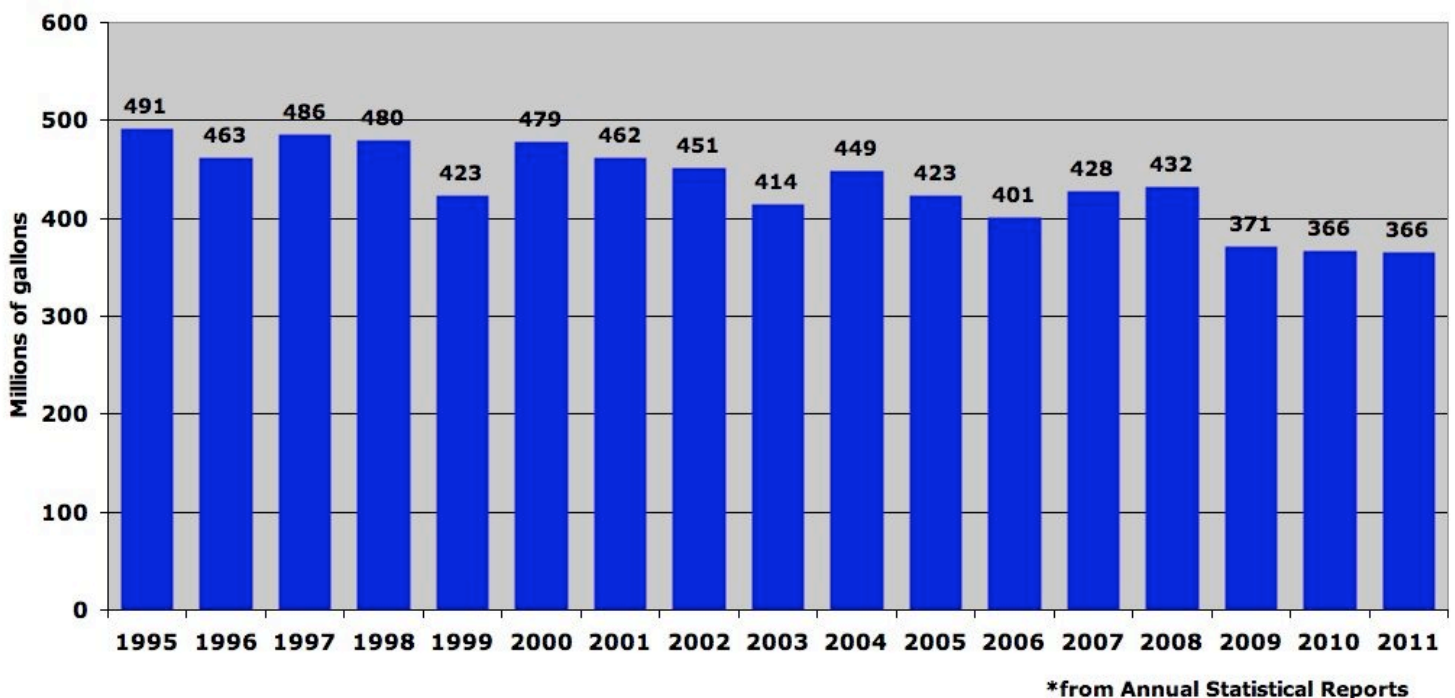


This pond near Lamson Road in Foxboro dries up when Billings Brook stops flowing.

The SWMI framework's exclusive reliance on hydrologic factors for determining maximum daily water withdrawal limits in WMA permits means that the summertime water withdrawals that cause the environmental impacts described above could continue over the next 20 years. In addition, the annual 7-day low flow trigger for non-essential water use restrictions proposed by SWMI does not provide enough protection for the environment or for drinking water, because it would kick in too late. Also, the water use restrictions called for in Standard Condition #6 allow limited non-essential water use regardless of the severity of drought conditions or the biological category of the sub-basin.

Sharon has had considerable success improving its water use efficiency, thanks in part to conservation-oriented ascending block water rates and an aggressive public outreach effort. Since 1995, residential water use has declined by approximately 100 million gallons per year (about 20%), despite a 7% increase in population (see graph below). Nevertheless, additional improvements are needed to improve drinking water quality and protect local streams, wetlands and Lake Massapoag.

Sharon's Residential Water Use*



Sharon's water use efficiency of 57 rgpcd is better than the state standard of 65 rgpcd. However, there is room for improvement. Many comparable suburban communities are doing even better than Sharon. Hamilton, Holliston, Maynard and Norton reported residential water use efficiency of 44 to 49 rgpcd in 2010. Hingham, Bridgewater, Hanson and Whitman were all at 50 to 51 gpdc.

Unfortunately, some members of Sharon's Water Management Advisory Committee recently proposed scrapping Sharon's conservation-oriented block water rates in favor of a single rate structure with a high fixed base fee that would halve the marginal rate for heavy water uses such as lawn irrigation, and seriously undermine the incentive to conserve water. Safe yields proposed by SWMI for the Taunton and Neponset watersheds are double to triple current

withdrawal levels, and would provide a compelling argument for opponents of conservation water rates in Sharon. The Sharon Friends of Conservation respectfully urges state authorities to commission an independent entity such as USGS to determine safe yield water withdrawal limits that protect the environment and support local conservation efforts.

Sincerely yours,

Kurt Buermann, President
Sharon Friends of Conservation



Sharon's Beaver Brook